

# Taxonomic studies on the genus *Hoya* R.Br. (Asclepiadaceae: Marsdenieae) in Papuasia, 7\*<sup>1</sup>

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## Summary

Forster, Paul I., Liddle, David J. & Liddle, Iris M. (1995). Taxonomic studies on the genus *Hoya* R.Br. (Asclepiadaceae: Marsdenieae) in Papuasia, 7. *Austrobaileya* 4(3): 401–406. The new species *Hoya onychoides* P.I.Forster, D.J.Liddle & I.M.Liddle from Papua New Guinea is described and illustrated. *Hoya onychoides* is compared with the closely allied *H. macgillivrayi* F.M.Bailey from Australia and *H. archboldiana* C.Norman from Indonesia and Papua New Guinea, with a description and illustration provided of the latter.

Keywords: Asclepiadaceae, *Hoya* - Australia, Papuasia, *Hoya archboldiana*, *Hoya macgillivrayi*, *Hoya onychoides*.

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## Introduction

In this paper we continue our long-term taxonomic studies on the genus *Hoya* R.Br. in Papuasia (Forster & Liddle 1992, 1993) with the description of a new species *H. onychoides* that is allied to *H. macgillivrayi* F.M.Bailey from Australia and *H. archboldiana* C.Norman from Indonesia and Papua New Guinea. This trio of species appears to be closely allied to each other and they are notable for their large showy, predominantly red to purple flowers. They form an apparently natural group within the genus by virtue of their more or less succulent, deep green, glabrous, lanceolate-ovate to lanceolate-elliptic leaf laminae, and the distinctive staminal corona lobes that are linear to oblong in outline, with the outer apex blunt to broad-ovate and slightly antrorse.

Schlechter (1913) provided a major revision of infrageneric groups in *Hoya*, and this has been recently expanded in a privately published book by Kloppenburg (1993; see also Forster 1994). None of the three previously mentioned species were known to Schlechter (1913). *Hoya macgillivrayi* was included in *H.* section *Physostelma* (Wight) Blume by Kloppenburg (1993), but that author did not mention *H. archboldiana* anywhere in his account.

The foliage and staminal coronas of *Hoya archboldiana*, *H. macgillivrayi* and *H. onychoides* are similar in some respects to those of most species included in *Hoya* section *Physostelma*. These three species appear to differ from plants of *Hoya* section *Physostelma* in their more or less succulent foliage, large red-purple flowers, and linear to oblong in outline staminal coronal lobes with an antrorse outer apex. In future publications we intend to provide a revised infrageneric classification of *Hoya*; however, for now it suffices to say that the three species covered here will form a separate group because of their uniquely shared features.

Since the early 1980's, all of these three species (with various clones) have been widely cultivated, particularly in Australia and the U.S.A., and have usually been labelled as *H. macgillivrayi*, *H. megalaster* Warb. or *H. archboldiana* (Liddle 1988). Despite the distinctive morphological features of the different species, there has been widespread confusion with respect to naming of cultivated material, mainly resulting from misuse of the name *H. megalaster* for *H. onychoides* (cf. Liddle 1988; Burton 1990). *Hoya megalaster* also has large red flowers (Liddle 1993), but differs from the three species mentioned above in its more mesophytic foliage, and much shorter staminal coronal lobes that lack the antrorse outer apex.

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\* continued from *Austrobaileya* 4: 51–55 (1993)

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## Materials and Methods

This paper is based on herbarium collections at A, B, BM, BO, BSIP, CANB, CBG, K, L, LAE, MICH, SING, NY, W and WRSL, our field collections in Australia and Papuaia, and plants

cultivated at Emerald Creek, Mareeba. Descriptive terminology and format is as in our previous papers (Forster & Liddle 1992, 1993).

## Taxonomy

### Key to species in the *Hoya macgillivrayi* group

1. Corolla campanulate, lobes markedly shorter than tube and < 15 mm long, reflexed ..... **3. *H. archboldiana***
- Corolla campanulate-rotate or rotate, lobes as long as or longer than tube and > 15 mm long, semi-erect to incurved ..... 2
2. Leaf petiole grooved on upper surface; corolla lobes strongly incurved giving a 'claw-like' appearance to the lobe, with margins strongly reflexed creating a fleshy protusion at the base of sinus between the corolla lobes ..... **2. *H. onychoides***
- Leaf petiole rounded on upper surface; corolla lobes weakly incurved giving a flattened appearance to the flower, with margins weakly reflexed with no fleshy protusion formed at the base of the sinus between the corolla lobes ..... **1. *H. macgillivrayi***

**1. *Hoya macgillivrayi*** F.M.Bailey, Queensl. Agric. J. n.s. 1: 190 (1914). **Type:** Australia, Queensland. COOK DISTRICT: Claudie River, Lloyd Bay, *W. Macgillivray* s.n. (holo: BRI [AQ333104]).

Illustrations: Forster & Liddle (1990); (colour) Liddle (1992).

### Description, Specimens Examined etc.

Refer to Forster & Liddle (1990) and Liddle (1992).

**Distribution:** Apparently restricted to Australia in the areas of Iron Range and McIlwraith Range on Cape York Peninsula, Queensland.

**Additional notes:** Cultivated plants of *H. macgillivrayi* have sometimes been incorrectly named as *H. megalaster* in the horticultural trade.

**2. *Hoya onychoides*** P.I.Forst., D.J. Liddle et I.M.Liddle **sp. nov.** affinis *H. macgillivrayi* F.M.Bailey a qua corollae lobis valde incurvatis sic florem aspectu ungui simili, et corollae loborum marginibus valde reflexis sic sinus base inter corollae lobos protuberatione carnosa, et antherarum appendicibus obovatis margine serrato differt. **Typus:** cultivated at Emerald Creek, Mareeba, Queensland (ex plant collected Lae-Boana road, Morobe Province, Papua New Guinea), Oct 1990, *D.J. Liddle* IML559 (holo: BRI [2 sheets + spirit]).

[*Hoya megalaster* auct. non Warb.; Liddle (1988); Burton (1990)]

Illustrations (colour): Liddle (1988: 4); Burton (1990: 62).

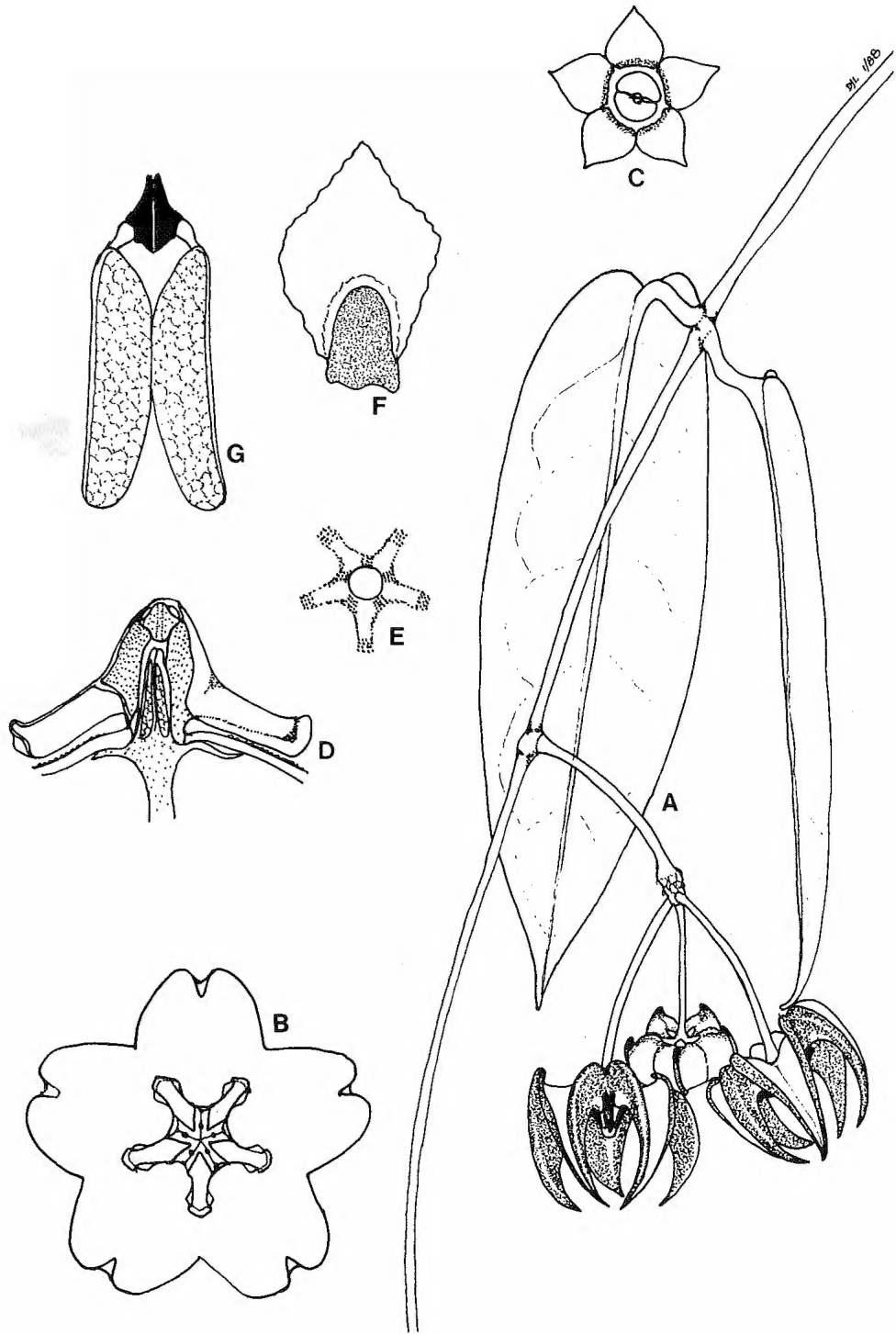


Fig. 1. *Hoya onychoides*: A. habit of flowering stem  $\times 0.5$ . B. apical view of flower  $\times 0.5$ . C. apical view of calyx and ovaries with corolla and staminal column removed  $\times 3$ . D. longitudinal section of staminal column and corona  $\times 1.5$ . E. pattern of hairs at base of staminal corona  $\times 25$ . F. anther appendage  $\times 10$ . G. pollinarium (inverted)  $\times 25$ . Drawn from live material of Liddle IML559. Del. D.J. Liddle.

Epiphytic succulent liane, latex white. Stems up to several metres long, glabrous; internodes up to 120 mm long and 5 mm diameter. Leaves petiolate; lamina lanceolate-ovate, up to 120 mm long and 55 mm wide, succulent, discolorous, glabrous, with venation obscure; upper surface dark green; lower surface pale green; tip acute to shortly acuminate; base cordate; petiole 18–22 mm long, 4–5 mm diameter, grooved on upper surface; colleters 3 or 4 at lamina base, often coalesced. Cyme racemiform, up to 170 mm long, positively geotropic; peduncle 80–130 mm long and c. 3 mm diameter, glabrous; bracts triangular, 1–1.2 mm long, 1–1.2 mm wide, glabrous. Flowers 25–27 mm long, 32–45 mm diameter; pedicels 45–60 mm long, 1–2 mm diameter, glabrous; sepals lanceolate-ovate to ovate, 3.5–5.6 mm long, 2.6–3.2 mm wide, glabrous; corolla pink throughout or pink with white towards centre, glabrous apart from sparse trichomes at base of staminal column and corona; tube 10–13 mm long, 20–30 mm diameter; lobes triangular to lanceolate, 18–32 mm long, 15–18 mm wide, held erect giving the lobe a ‘claw-like’ appearance, margins revolute, resulting in the sinuses between the corolla lobes forming a sharp protusion at the base of the lobes. Staminal corona pink, c. 17 mm long and 11 mm diameter, inserted on column  $\pm$  flush with corolla; lobes 12–13 mm long, 2–2.2 mm wide, with inner apex lanceolate-oblong, outer apex blunt-oblong and somewhat infolded at base, top rounded. Staminal column c. 10 mm long and 6 mm diameter; anther appendages lanceolate, 2.9–3 mm long, 1.5–1.6 mm wide; alar fissure c. 4 mm long. Style-head conical-globose, 1.9–2 mm diameter. Pollinaria 1.85–1.9 mm long, 1.15–1.2 mm wide; pollinia narrowly-oblong, 1.8–1.85 mm long, 0.5–0.52 mm wide, with pellucid germination mouth on outer edge; corpusculum oblong, 0.7–0.75 mm long, 0.38–0.4 mm wide; caudicles 0.4–0.45 mm long, 0.15–0.2 mm wide, winged on upper edge. Fruit and seed not seen. **Fig. 1.**

*Other specimens examined:* Papua New Guinea. MILNE BAY PROVINCE: Fife Bay, Sep 1930, Turner 104A & B (BRI).

**Distribution and habitat:** Known from Milne Bay and Morobe Provinces in Papua New Guinea. The habitat where this species occurs naturally is not known.

**Notes:** The name *Hoya megalaster* Warb. has been used for this species by Liddle (1988) and Burton (1990). *Hoya onychoides* has been confused by *Hoya* cultivators with several other species of *Hoya*, including the unrelated *H. subcalva* Burk. from the Solomon Islands (Burton 1990).

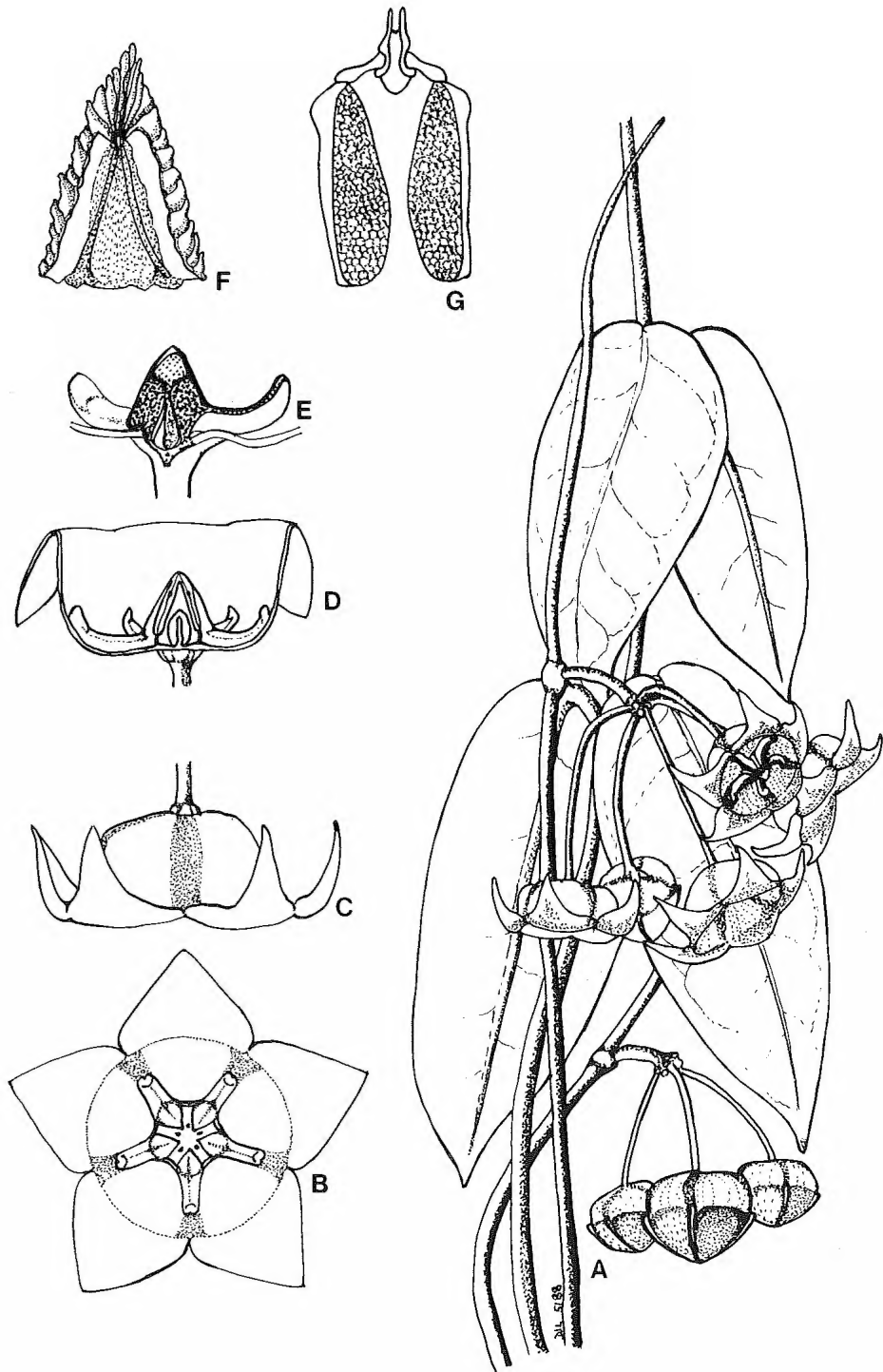
**Etymology:** The specific epithet is derived from the Greek, *onyx* (claw) and *-oides* (similar) and alludes to the ‘claw-like’ appearance of the corolla lobes.

**3. *Hoya archboldiana*** C. Norman, *Brittonia* 2: 328 (1937). **Type:** PAPUA NEW GUINEA. CENTRAL PROVINCE: Rona, Laloki River, 3 Nov 1933, L.J. Brass 3621 (holo: NY).

*Hoya* sp. ABG-41–48 (Burton 1994).

Illustration (colour): Burton (1994: 48).

Epiphytic succulent liane to several metres long; latex white. Stems cylindrical, glabrous when young becoming corky with age; internodes up to 200 mm long and 5 mm diameter. Leaves petiolate; lamina lanceolate-ovate to lanceolate-elliptic, up to 160 mm long and 70 mm wide,  $\pm$  succulent, discolorous, glabrous, with venation obscure on both surfaces; upper surface dark glossy green; lower surface pale green; tip acute; base cordate; petiole grooved on upper surface, 14–20 mm long, c. 4 mm diameter, glabrous; colleters 4 at lamina base. Cyme racemiform, up to 100 mm long, positively geotropic; peduncle 25–30 mm long, c. 3 mm diameter, glabrous, lenticellate with age; bracts triangular, 0.9–1 mm long, 0.9–1 mm wide, glabrous. Flowers 18–20 mm long, 40–47 mm diameter; pedicels 45–55 mm long, 1.8–2 mm diameter, glabrous. Sepals lanceolate-ovate, 3–4.5 mm long, 4–4.1 mm wide, glabrous. Corolla campanulate, pink to pink with white, glabrous; tube 23–25 mm long, 28–30 mm diameter; lobes triangular, 13–14 mm long, 18–19 mm wide, reflexed, with margins revolute. Staminal corona pink, 10–11 mm long, 17–18 mm diameter, inserted on column  $\pm$  flush with corolla; lobes 2.5–2.7 mm long, 3.5–3.6 mm wide at base, inner apex lanceolate-oblong, confluent but not fused with corolla for most of length with the outer apex upturned and infolded with the upturned part



**Fig. 2.** *Hoya archboldiana*: A. habit of flowering stem  $\times 0.5$ . B. apical view of flower  $\times 0.5$ . C. lateral view of flower  $\times 0.5$ . D. lateral view of flower with corolla partially removed to show corona  $\times 0.5$ . E. longitudinal section of staminal column and corona  $\times 1.5$ . F. anther appendage  $\times 10$ . G. pollinarium (inverted)  $\times 25$ . Drawn from live material of *Liddle* IML560. Del. D.J. Liddle.

2.5–2.7 mm long, top rounded. Staminal column c. 8 mm long and 6 mm diameter; anther appendages lanceolate, c. 2 mm long and 1.5 mm wide; alar fissure c. 3.5 mm long. Style-head depressed-globose, 2.6–3 mm diameter. Pollinaria 1.9–2 mm long, 1.15–1.2 mm wide; pollinia narrowly-oblong, 1.56–1.65 mm long, 0.44–0.45 mm wide, with pellucid germination mouth on outer edge; corpusculum ovoid, 0.7–0.77 mm long, 0.38–0.4 mm wide; caudicles 0.38–0.4 mm long, 0.13–0.3 mm wide, winged on upper edge. Fruit and seed not seen. **Fig. 2.**

**Specimens examined:** Indonesia. Aru Islands. Wokam, May 1938, *Buwalda* 5052 (BO). Papua New Guinea. WESTERN PROVINCE: Oriomo River, 8°50'S, 143°00'E, Apr 1968, *Millar* NGF35498 (LAE). CENTRAL PROVINCE: Sogeri, Sirinumu Dam, Sep 1971, *Millar & Womersley* 1282 (LAE, L); Brown River Logging road, 9°15'S, 147°20'E, Aug 1970, *Millar* NGF48617 (LAE, L); Mori River, Cape Rodney, 10°05'S, 148°27'E, Jun 1968, *Henty* NGF38598 (LAE); NORTHERN PROVINCE: Idua - Haijo Logging Area, 3 km NE of Hohota village, 8°45'S, 148°15'E, Oct 1975, *Wiakabu & Kairo* LAE70276 (LAE, L). **Cultivated.** cultivated at Emerald Creek, Mareeba, Australia (ex plant collected at Cape Rodney, Central Province, Papua New Guinea), Oct 1990, *Liddle* IML560 (BRI).

**Distribution and habitat:** *Hoya archboldiana* appears to be the most widely distributed species of the group with collections from the Aru Islands in Indonesia, and Western, Central and Northern Provinces in southern Papua New Guinea. Plants grow as canopy epiphytes in lowland rainforests below 600 m alt.

**Notes:** *Hoya archboldiana* is distinctive within this trio of species in the possession of campanulate flowers with the reflexed corolla lobes shorter than the tube. Norman (1937) did not ally *H. archboldiana* to any species and merely made the comment 'The large shiny leaves, large flowers and corona seem very distinct and unlike any other species'.

Burton (1994) discussed two forms of this species where there are some minor differences in the length of the staminal coronal lobes and speculated that one of them (as *Hoya* sp. ABG-41-48) may represent *H. patella* Schltr. *Hoya patella* is a distinctive, much smaller flowered species with mesophytic, densely pubescent foliage and with a staminal corona typical of other taxa in *Hoya* section *Physostelma*.

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